# ELECTROSTATICS, LAB 36.pdf

Name _____ Period_____

Whenever two dissimilar materials are rubbed together, static electricity is produced; one material acquires a positive charge and the other a negative charge. In most instances these charges are of negligible magnitude and go unnoticed. Sometimes, however, the accumulation of an electrostatic charge is quite significant, and its presence is readily detected. In this experiment we shall produce charges, examine some of the properties of charged bodies, and verify the basic law of electrostatics.

**WARNING! ELECTROSCOPES ARE VERY DELICATE! HANDLE THEM WITH UTMOST CARE!!!**

**PROCEDURE**

## 1. Production of negative electric charge

**Vigorously** rub an ebonite rod with a piece of flannel and bring it close to a pith-ball electroscope as in Figure 36-1. **Result**?

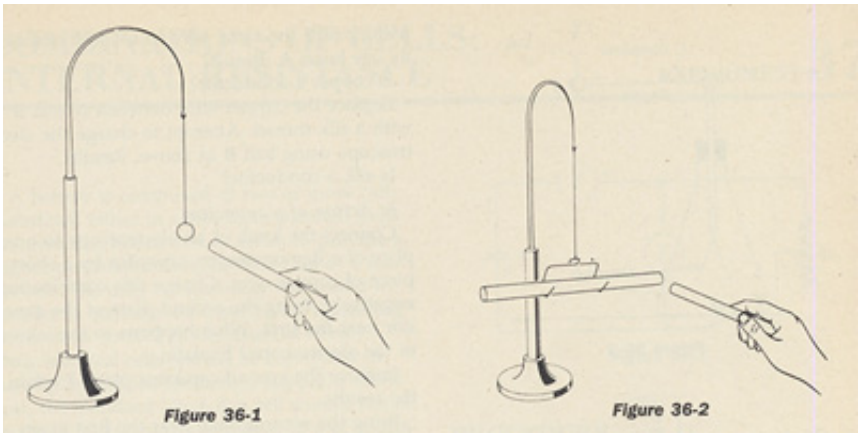

Figure 36-1



Figure 36-2

Let the pith ball momentarily touch the ebonite rod. **Result? Explain** the movement of the pith ball.

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## 2. Production of positive electric charge

Vigorously rub the glass rod with silk and repeat the above procedure in with the pith ball. **Result? Explain.**

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How is the pith ball charged when it is repelled by the glass rod? If a charged ebonite rod were brought near such a charged pith ball, what would happen? **Explain**. Try it and see if your prediction is true. **Result**?

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## 3. Basic law of electrostatics

Suspend a charged ebonite rod as in Figure 36-2 with a thread. Bring a second charged ebonite rod near one end of the suspended rod. **Result**? Try the other end. **Result**?

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Bring a charged glass rod near one end of the suspended charged ebonite rod. What do you **observe**? Try-the other end. **Result**?

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**Is the charge the same at both ends of the suspended ebonite rod?**

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**Is it the same charge that you produced on the second ebonite rod? How can you determine this?**

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**What conclusion do you draw with regard the behavior of electric charges toward each other?**

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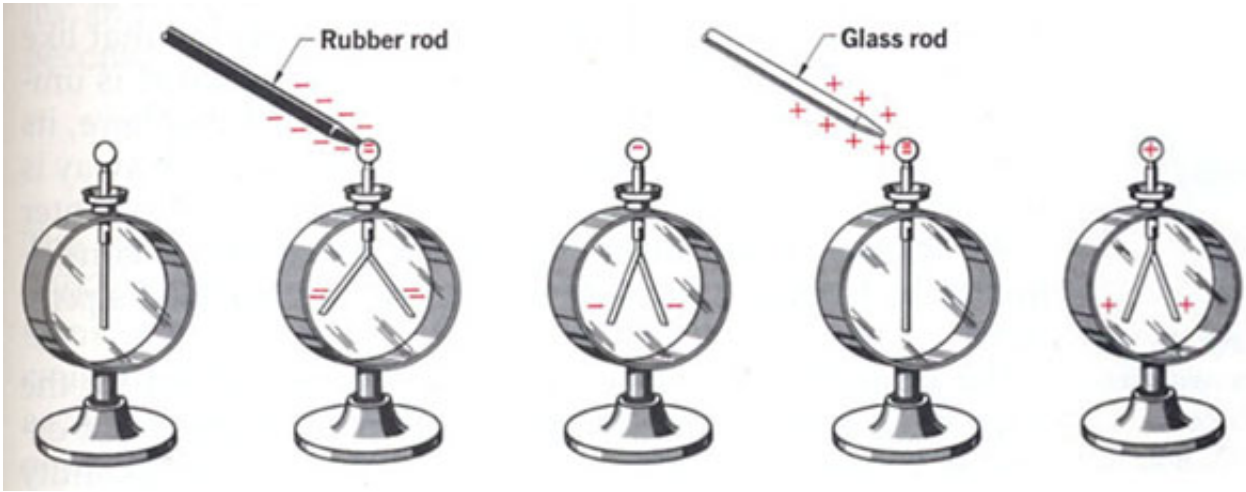
## 4. Charging an electroscope by conduction.




Charge an ebonite rod and scrape it against the plate of an electroscope. Result? Explain.

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What kind of charge is on the electroscope? **Explain**. The charge may be removed from the electroscope by touching the knob with the hand. **Explain** this action.

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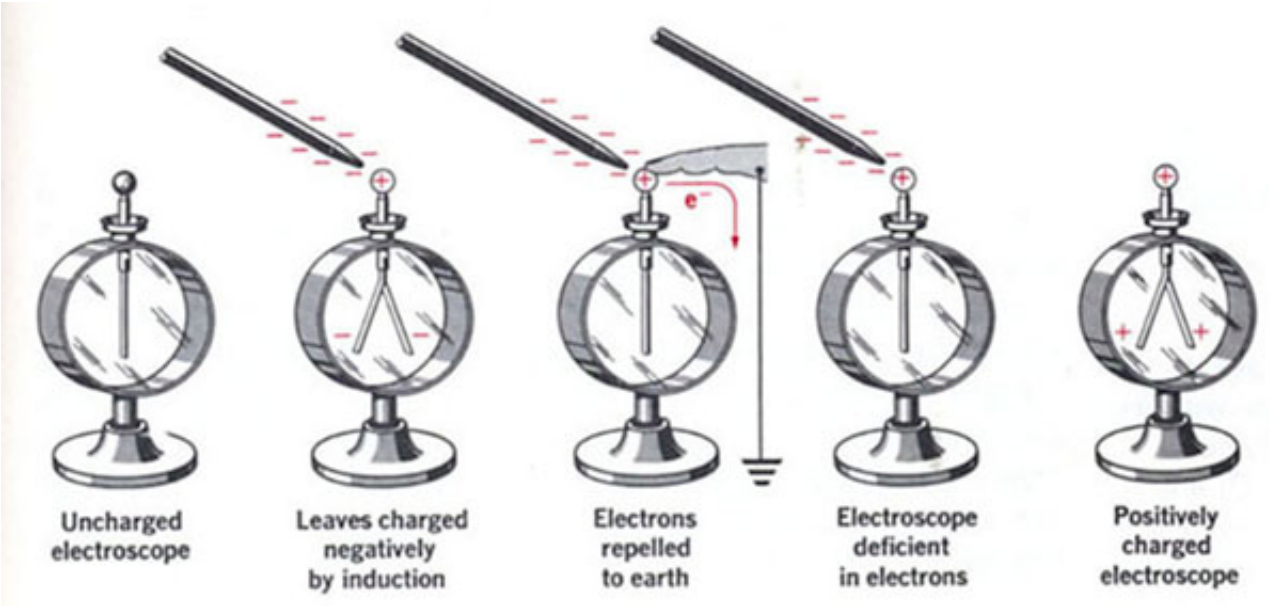
## b. Charging an electroscope by induction.




Bring a charged ebonite rod near the electroscope knob. **What happens to the leaves of the electroscope?**

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With the ebonite rod still near, momentarily touch the knob of the electroscope with your finger. **Explain what happens.**

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Remove the rod. ..... **Is the electroscope charged? What kind of charge does it have? Explain.**

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Discharge the electroscope and repeat the procedure, using a glass rod charged by rubbing it with silk. **What kind of charge does it have? Explain.**

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**CRITIQUE:**